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Memorandum

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NOVEMBER STATUS REPORT ON CHEMICAL VULNERABILITIES AT OHIO FIELD OFFICE PROJECT SITES

Peter N. Brush, Acting Assistant Secretary for Environment, Safety and Health, EH-1

The required status report on the chemical vulnerability assessments at Ohio Field Office Project Sites is attached. The Status Report summarizes initiatives and planned activities in response to the Secretary of Energy memorandum dated 4 August 1997; Subject; DOE Response to the May 14, 1997 Explosion at the Hanford's Plutonium Reclamation Facility. Also provided in the status report is a brief update of emergency management planning and activities at our sites.

A full accounting of all planned initiatives and activities from the Secretarial memoranda regarding the Hanford Explosion and resulting Lessons Learned will be provided in the December 31, 1997 status report.

Point of Contact for this and all Hanford Lessons Learned activities is the Office of Compliance and Support at the Ohio Field Office. The Project Manager for this activity is Mr. Tim Marcus, Emergency Management Specialist for the Office of Compliance and Support.

Robert D. Folker

Robert D. Folker
Acting Manager

Attachment

cc: Project Directors

STATUS REPORT ON THE ASSESSMENT OF CHEMICAL AND RADIOLOGICAL VULNERABILITIES AT OHIO FIELD OFFICE PROJECT SITES

Prepared November 12, 1997

Executive Summary

This update is provided to meet the requirement of the October 21, 1997 memorandum from the Secretary of Energy which states a status report will be provided during November 1997 that addresses chemical and radiological vulnerabilities of facilities and operations. This status report also briefly updates emergency management activities planned or completed that will comply with the intent of the Secretarial memoranda dated August 27, 1997.

The Ohio Field Office is comprised of five (5) Project Offices. They are the Fernald, Miamisburg, Ashtabula, and Columbus Environmental Management Projects and the West Valley Demonstration Project.

In response to the Secretarial Memoranda regarding the Hanford Explosion at the Plutonium Reclamation Facility, the Ohio Field Office projectized all action memoranda into a single project with the purpose of addressing the issues and concerns raised by Secretary Peña. The full report will be provided to the Secretary by December 31, 1997 in accordance with the memoranda dated August 27, 1997.

The focus of the Ohio Field Office Project Plan is to reassess the site chemical and radiological vulnerabilities and address potential safety concerns. The Project Plan will also address lessons learned in timely notification of emergencies and significant events and from the Hanford emergency response operations.

All Ohio sites have been proactive in planning and conducting assessments. The Ohio Field Office and the contractor organizations at each site have placed an extremely high level of emphasis in complying with the intent of the memoranda. This update report reflects the varying activities at each site.

Summary of Emergency Management Activities

The Ohio Field Office, working closely with each Project Office has begun a review of Emergency Management issues highlighted by the Hanford Lessons Learned. This effort, conducted by both contractor and Federal personnel is reviewing Hazards Analysis, Occurrence Reporting and Processing, Lessons Learned Programs, and Emergency Plans and Procedures. Sites are also reviewing interface activity with external agencies.

To date, the Miamisburg and West Valley sites have identified potential weaknesses in off site notification during off shift hours. Both sites will be submitting corrective actions to these issues in accordance with the requirements of DOE Order 151.1, "Comprehensive Emergency Management Systems".

Two sites, Columbus and Ashtabula, do not conduct emergency operations in accordance with DOE Order 151.1, but do have programs in place that adequately address classification and reporting of events and emergencies.

The Office of Emergency Management sponsored Emergency Management Decision Making Training, a facilitated four hour block of instruction, which was presented to both contractor and DOE staff from the Fernald, Miamisburg, Columbus and Ohio Support Offices. The West Valley site is planning to use the course material and a taped version of training from the Fernald site. Approximately 90 personnel received the training which in summary, supports the conservative approach to classifying and reporting emergencies and significant events. The training session was also attended by one member of the Ohio Emergency Management Agency and by representatives of the local emergency planning agencies.

Two Ohio Field Office sites, Fernald and West Valley, received formal assessments of their emergency management programs during 1997. Neither Project was cited for significant findings that would indicate the potential for failures displayed in the Hanford incident.

DOE oversight of Mound activities has not progressed as far as other sites. This is due to the recent assumption of responsibilities of the new contractor, Babcock and Wilcox of Ohio. As noted below however, B&W has an aggressive plan to address all the issues raised in the Secretarial memoranda. The Department will continue to assess site programs in accordance with DOE Order 151.1 and the Ohio Field Office Hanford Lessons Learned Project Plan.

Fernald Chemical and Radiological Vulnerability Assessment

The Material Storage, Handling and Related Activities Program is derived from Appendix N of the *"Implementation Plan for the Safety Analysis Reports and Technical Safety Requirements at the Fernald, PL-3049"* and is the cornerstone of the safe handling of hazardous materials at the site. The site currently stores and handles a variety of radioactive and other hazardous materials. The activities are performed throughout the site and support the cleanup and environmental remediation activities.

The greatest hazard to workers and the off-site population is from the consequences associated with a large fire. The plant specific BIOs address the consequences of fire and natural phenomenon hazards as well as special hazards associated with each nuclear facility.

The site is in the continuous process of scrutinizing and disposing of unneeded chemicals. Chemicals at the site are inventoried annually for compliance with the chemical inventory requirements of 40 CFR 300 series of regulations. After the inventory, chemicals are scrutinized for need or disposal. The site Laboratory conducts a quarterly chemical inventory and disposes of unneeded chemicals. The Safe-Shutdown Department also identifies unneeded chemicals in buildings designated for shutdown. Safe Shutdown clears and prepares the buildings for demolition. This includes disposal of stored waste and holdup material. Waste Minimization is responsible for contacting vendors to recycle or dispose of unneeded chemicals.

Planned Action: Although the site is active in scrutinizing unneeded chemicals, a more proactive documented process should be established. A site wide inventory will be concluded in the month of December for the annual "Chemical Inventory Report" required by 40 CFR 300 series of regulations.

A walkdown of the site by a team of subject experts is scheduled for the month of November, 1997. All buildings except safe shutdown controlled buildings will be inspected. For plant 2/3, 8, 9, 5 and the Pilot Plant, Safe Shutdown Facility Transfer documentation will be reviewed. This entire activity is expected to be completed by December 30, 1997.

Fernald's Waste Management Group is engaged in completing a compatibility study based on the lessons learned from the white metal box overpressurization event at the Fernald site on May 22, 1997. All waste generating projects and activities are reviewed to ensure that process controls and procedures are in place to prevent or evaluate packaging and/or mixing of different wastes. Facilities or projects under review include the Waste Pit Remediation Action Project, On-Site Disposal Facility Project, Leachate Line and Haul Road Projects, Advanced Waste Water Treatment Activities, Analytical Activities lab, Maintenance and Garage Activities and the Mixed Waste Disposition Project.

Shutdown facilities or non-active buildings have gone through the safe shutdown process. The facility transfer documentation will be examined for hazardous material left in any of these facilities. This action will be completed by November 30, 1997.

DOE Fernald Safety and Assessment personnel, supported by technical area specialists from the Ohio Field Office will conduct an independent verification of the data generated from the reviews and planned activities to further validate site plans, procedures and activities.

Fernald Staff and Support Staff Competencies

The site is conducting a review of staff technical competencies for project engineers as well as emergency support staff. Specific projects to be reviewed include the Silo Project, Safe Shutdown Project, Waste Pit Disposition Project, Organic Extraction Project, Liquid Bulking Project, Legacy Thorium Project, Low Level Waste Project and the Nuclear Materials Disposition Project. This review is expected to be complete by December 31, 1997.

Results of the Training Departments Operational Readiness Review will be screened for noted deficiencies related to hazard communication. It is presently noted that the FEMP Site Security Force is not sufficiently trained for project specific hazards, but is trained for site wide hazards (e.g. criticality).

DOE Fernald Safety and Assessment personnel, supported by technical area specialists from the Ohio Field Office will conduct an independent verification of the data generated from this review.

Miamisburg Chemical and Radiological Vulnerability Assessment

Specific projects and initiatives are planned or underway at the DOE Mound Site to locate and eliminate hazards to the environment and personnel health and safety, including inventorying and dispositioning chemical and radiological hazards. B&W of Ohio has six (6) initiatives underway that will meet the intent of the Secretarial memoranda regarding the Hanford Lessons Learned. Where applicable, screening will be conducted in parallel between the six initiatives to preclude duplication of effort. Some synergy is expected between assessments.

The Mound Facility Assessment Plan was completed by November 3, 1997. The primary goal is to identify and document the hazards associated with physical conditions and hazards within the buildings and facilities of the Mound Site. A secondary objective is to identify those conditions and hazards that represent a baseline change in cost and/or schedule and to make an initial estimate of the magnitude of this change. The actual completion date for the products discussed by this plan is December 19, 1997. Facility assessments are currently underway.

The Chemical Inventory Project will utilize Waste Coordinators and other Project/Building Personnel to: 1) Complete a sitewide inventory and verification of chemicals in containers (excludes process systems, tanks etc.); The deliverable from this initiative will be a list of chemicals (or unknowns) by building; 2) Complete a screening of the inventory lists to identify specific chemical hazards; 3) Complete a characterization of unknowns and repeat item (2) for the previously unknown chemicals and 4) disposition chemicals within 18 months of characterization.

The Idle Equipment Initiative Plan has been developed to: 1) complete a sitewide inventory and verification of chemicals in idle equipment, tanks, and process lines; 2) Document any information that is known on the processes that were conducted and the chemicals that were used or stored in the idle equipment, tanks and process lines; 3) Complete a screening of the known chemicals to identify specific hazards; 4) complete a characterization of unknowns and repeat item (3) to identify specific hazards and 5) Disposition chemicals, equipment, tanks and hardware. Scheduled completion of the idle Equipment Plan is January 31, 1998.

The Chemical Vulnerability Assessment Plan is specifically designed to meet the issues raised in the Secretary of Energy memorandum dated August 4, 1997. Using data derived from the previously mentioned plans, the Chemical Vulnerability Assessment Plan will specifically address: 1) Staff Technical Competencies; 2) Assessment of Chemicals; 3) Assessment of Known Vulnerabilities; 4) Assessment of lessons learned and a review of DOE Occurrence Reporting, and 5) Upgrading of Emergency Management. Scheduled completion dates for all activities is by December 31, 1997. The previously mentioned plans and their associated deliverables will be used to complete the majority of the stated goals.

A Quality Assurance Assessment of the Basis for Interim Operation compliance will be completed. At present, the date of this QA Assessment has not been projected, but will be reported in the December 31, 1997 Ohio Field Office Project Plan Status Report.

An Integrated Hazards Analysis will be developed after the completion of the aforementioned efforts. The goal of this analysis will be to characterize any additional hazards uncovered as building disposition continues. The Mound Integrated Exit Project will include Integrated Hazards Analysis and be consistent with DOE Order 151.1.

Miamisburg Staff and Support Staff Competencies

Staff Technical Competencies will be addressed in the Chemical Vulnerability Plan and is scheduled for completion in the first quarter of FY1998. The results of this assessment and the DOE validation process on it will be reported in the Ohio Field Office Project Plan status report due by December 31, 1997.

West Valley Chemical and Radiological Vulnerability Assessment

A team of specialists has been reassessing the WVDP facilities, operations, and processes for chemical and radiological/nuclear vulnerabilities. The team began the process by reviewing previously completed hazards surveys, including those required by DOE Order 151.1 which are presented in WVDP-273, "WVDP HAZARDS SURVEY".

The team has not identified any new, previously unknown vulnerabilities, but it should be noted that one WVDP monitored vulnerability is that there is a lack of definitive knowledge about the current condition of the Main Plant processes which were deactivated and decontaminated by Nuclear Fuel Services (NFS) prior to 1981. Since the vessels and associated equipment that once contained the PUREX processes are in cells which are not a part of the active WVDP processes and are strictly controlled due to high radiation levels, WVDP relied on the NFS records in these reassessments. Based on the available information, we judge that the quantities of hazardous materials in these cells and the ventilation systems and shielding construction of these cells is such that, should an unforeseen upset occur, the effects would be expected to have only localized impact. Special attention to this vulnerability will be given during future decontamination and decommissioning activities.

West Valley Staff and Support Staff Competencies

The current evaluation team consists of specialists from all pertinent organizations at the WVDP, including nuclear engineering, environmental compliance, chemical engineering, industrial hygiene and health physics experts. Also included were individuals with extensive historical knowledge of WVDP facilities and former operations, several of which had over 20 years experience on site.

Programmatically, the USQD program has been recently re-engineered so that the list of USQD Originators has been reduced from 200 to 50 and training frequency has been increased. These changes are expected to have an impact on the level of control and excellence in the program. There are currently 6 Safety Analysts authorized to complete the USQD process.

Ashtabula Chemical and Radiological Vulnerability Assessment

In conjunction with a site Emergency Management Assessment conducted during the period October 14 through 17, 1997, a hazard evaluation was completed assessing the hazardous chemical inventory, associated energy sources, and the physical relationship of their storage locations. Due to the status of decommissioning, there are very few hazards that could result in an offsite release. The results of the evaluation established a possible offsite release scenario involving spilled uranium contaminated waste with subsequent ignition. Contaminated material would be released and transported in the smoke plume. Interviews and a review of applicable emergency response guidance show that the RMI response to the scenario would be conservative and has been addressed in a drill simulation.

Ashtabula Staff and Support Staff Competencies

An assessment of staff technical competencies was performed in the areas of emergency planning, site and programmatic events and occurrences, and safety and health training. The evaluation included interviews with a representative sample of the work force.

Follow up assessment of RMI staff technical competencies in the areas of hazard assessment and chemical analysis will be performed by DOE Staff. A review of staff biographical summaries and review of site training records will be conducted to assure the technical competency of RMI personnel assigned the task of hazard evaluation. Results of this review will be reported in the Ohio Field Office Project Plan Status Report.

Columbus Chemical and Radiological Vulnerability Assessment

The purpose of the chemical inventory was to identify the chemicals (defined broadly) at the shutdown facilities at the West Jefferson North site, namely, buildings JN-1, JN-2, JN-3 and the Well House. In addition, a chemical safety expert would review the chemical lists, their containment and location to determine their safety now and as a result of long term storage.

The primary approach was a visual inspection of rooms and open areas. However, seven inaccessible hot cells and three inaccessible storage areas required a different approach. For these areas, interviews were held with previousand current employees who worked in these cells/areas, video tapes of previous entries into these cells/areas were observed, previous inventories of these cells/areas were examined, and some limited searching of the cells, using manipulators, was performed. Only one contaminated room, the Charpy Room was entered to search for chemicals, because of the low radiation levels.

A chemical was defined very broadly, because even the most common solutions or substances, such as eyewash or oil, contain solutions of basic chemicals and additives. The inventory consisted of a name identification, its current quantity, physical nature of its container and its location.

At the conclusion of the inventory a walkdown of all chemicals and chemical locations was performed with a chemical safety expert. His role was to determine container suitability, chemical stability and hazard, location and proximity safety, and effects of long term storage.

The Radiological Laboratory, located in JN-2, and its controlled storage areas were not inventoried as part of this effort, because they are not in a shutdown mode and they control their own chemicals.

The results of the screening indicate no significant vulnerabilities from the minimal amount of chemicals stored in the West Jefferson North site. The screening indicates that chemicals are stored in a safe configuration. According to the chemical safety expert, none of the identified chemicals existing at the West Jefferson North site pose concerns, if used and stored properly and furthermore, do not pose any known concerns due to long term storage.

Columbus Staff and Support Staff Competencies

Review Team

Mr. Larry Nee, CSP is the Safety and Industrial Hygiene Manager on the BCLDP project. He has been on the project for 5 years.

Mr. Lou Meyers has been with Battelle for 28 years as a Principle Research Scientist. He has been working with the BCLDP for 4 years assigned to the West Jefferson North site. His primary responsibility has been documenting historical activities in the JN-1 hot cells.

Prepared By:

Ohio Field Office
Hanford Lessons Learned Project Team